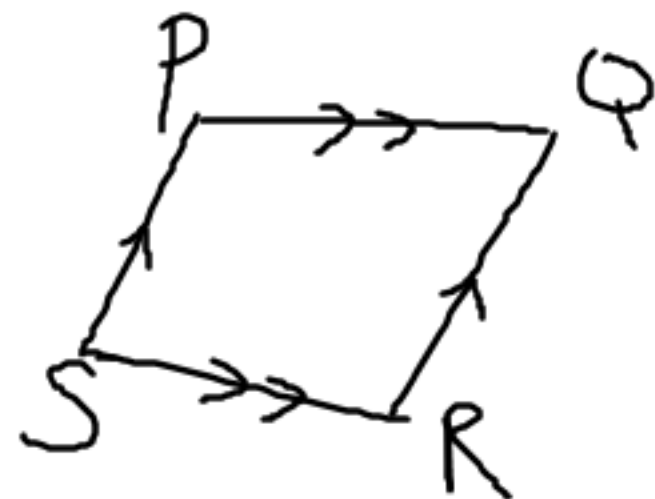


6.2 Properties of a Parallelogram

Parallelogram:

a quadrilateral with
both pairs of opposite
sides parallel.

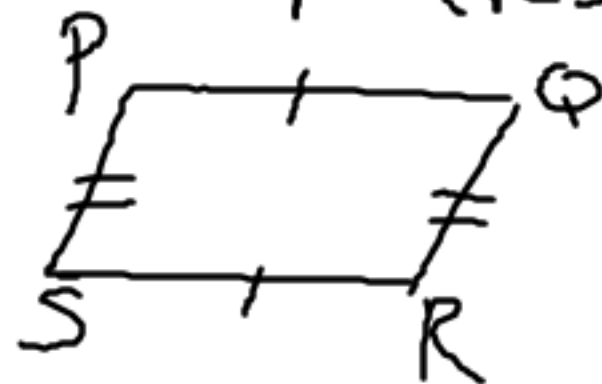
ex. In $\square PQRS$ $\overline{PQ} \parallel \overline{SR}$



& $\overline{QR} \parallel \overline{PS}$


TH. 6.2 If a quadrilateral is a parallelogram, then its opposite sides are \cong .

Ex. PQRS is a .

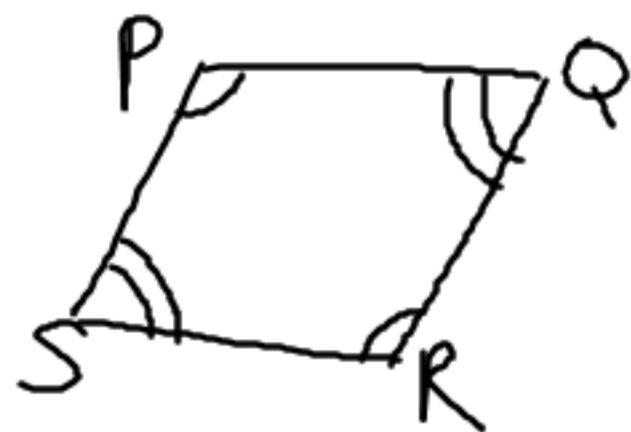


$$\overline{PQ} \cong \overline{SR} \quad \&$$

$$\overline{PS} \cong \overline{QR}$$

TH. 6.3: If a quadrilateral is a  then, its opposite \angle 's are \cong .

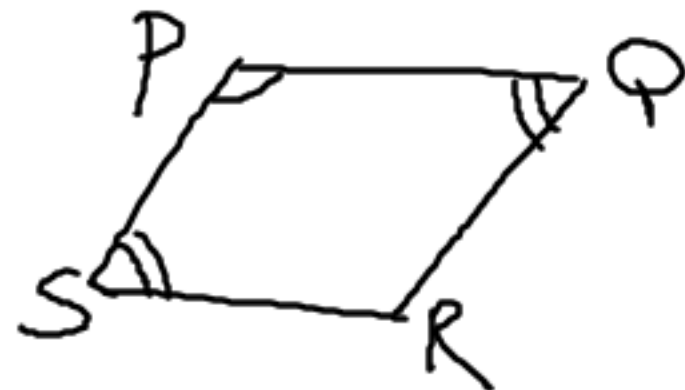
Ex. PQRS is a \square .



$$\angle P \cong \angle R \text{ \& } \angle Q \cong \angle S.$$

TH. 6.4: If a quad. is a \square then, consecutive \angle 's are supplementary.

Ex. PQRS is a \square .

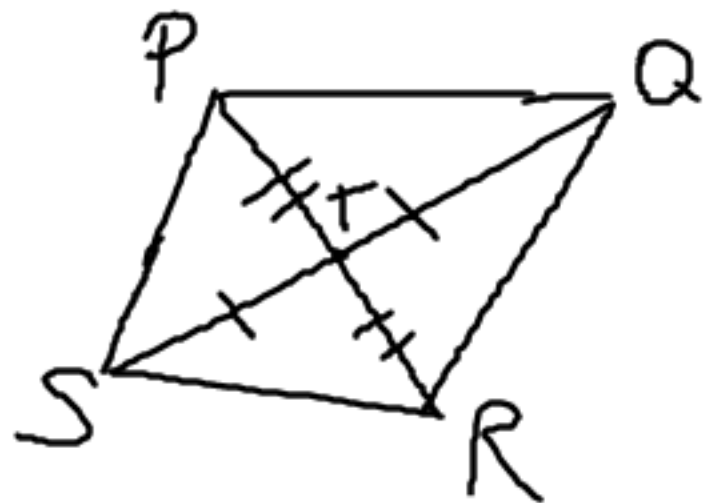


$$m\angle P + m\angle Q = 180^\circ$$

$$m\angle P + m\angle S = 180^\circ$$

TH. 6.5: If a quad. is a \square then, the diagonals bisect each other.


Ex. PQRS is a \square .




$$\overline{PT} \cong \overline{RT} \quad \&$$

$$\overline{QT} \cong \overline{ST}.$$

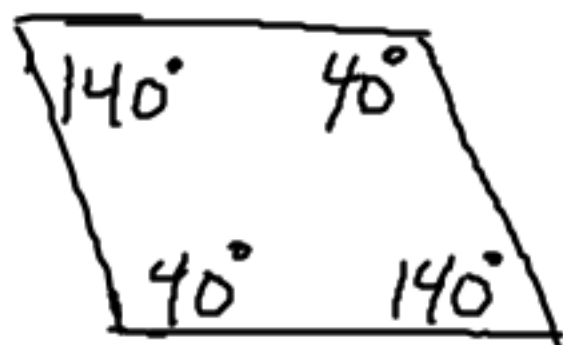
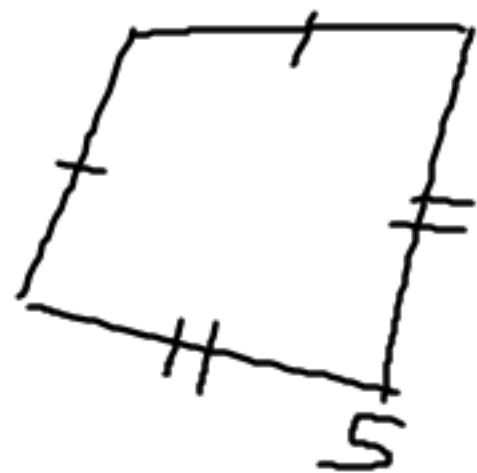
6.3 Showing Quadrilaterals are Parallelograms.

Th. 6.6: If both sides of a quad. are \cong then, then quad. is a .



If $\overline{PQ} \cong \overline{SR}$ &
 $\overline{QR} \cong \overline{PS}$ then,
PQRS is a .

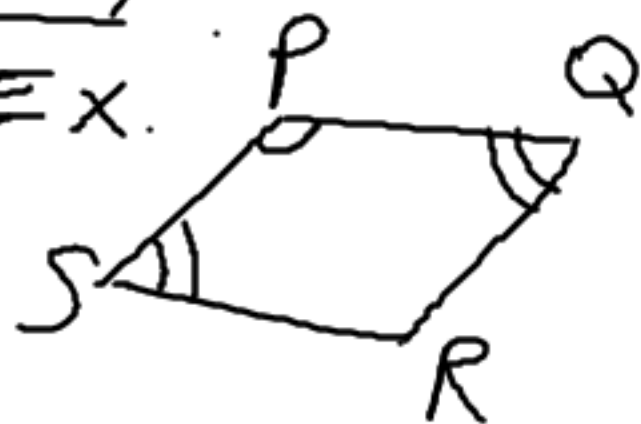
Ex. Are these quad. ?



Th. 6.8: If an \angle is supplementary to both of its consecutive \angle 's then the quad. is a



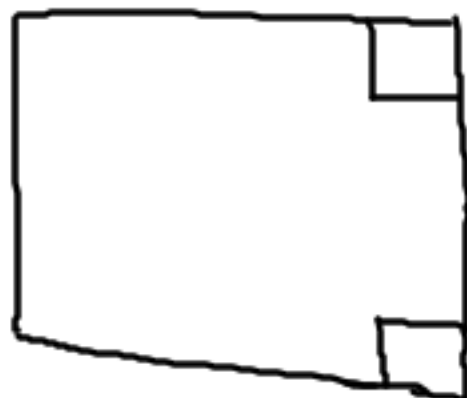
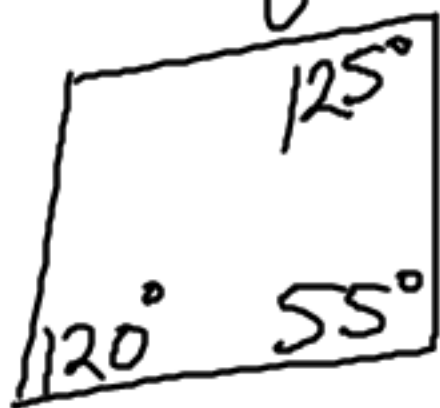
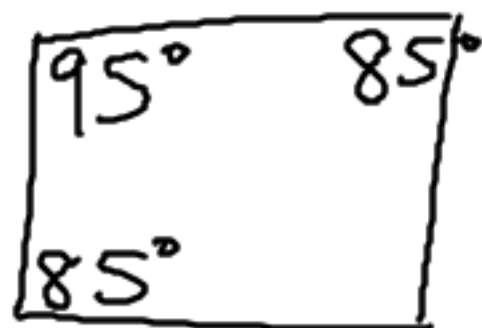
Ex.




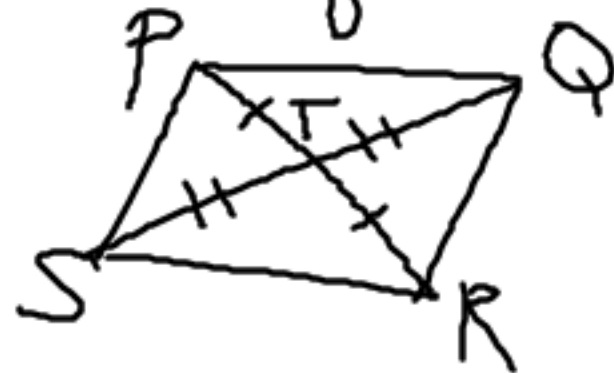
If $m\angle P + m\angle Q = 180^\circ$
+ $m\angle P + m\angle S = 180^\circ$
then, PQRS is a





Ex. Are these quad. \square .

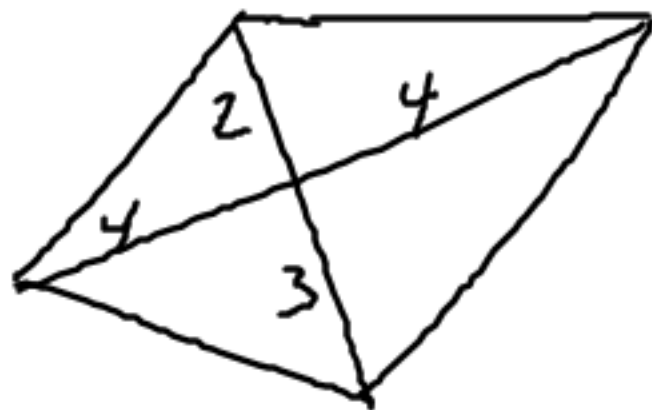
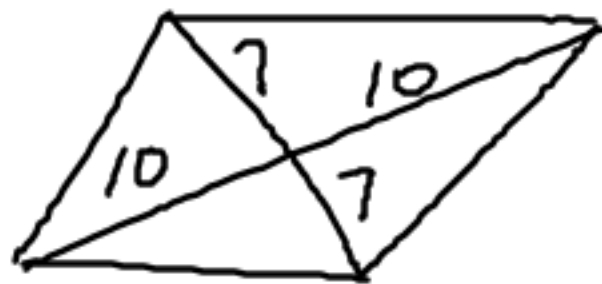



TH 6.9 If the diagonals of a quad. bisect each other then, the quad. is a .



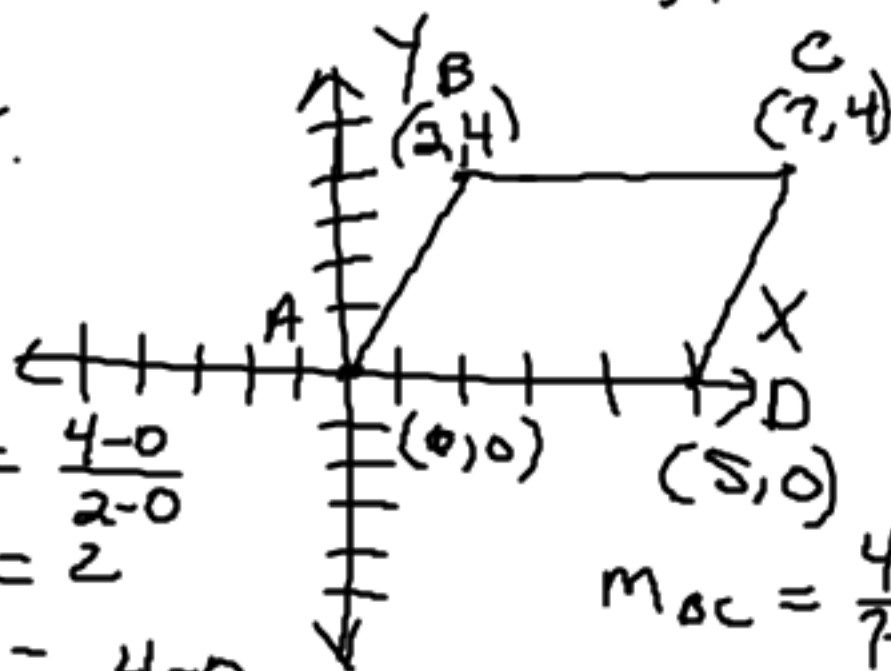
If $\overline{QT} \cong \overline{ST}$ &
 $\overline{PT} \cong \overline{RT}$ then
 PQRS is a .

Ex. Are these quad. ?



Using Slope to determine if
quad. is .

Ex.



Slope =
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m_{AB} = \frac{4-0}{2-0} = 2$$

$$m_{CD} = \frac{4-0}{7-5} = 2$$

$$m_{BC} = \frac{4-4}{7-2} = 0$$

$$m_{AD} = \frac{0-0}{5-0} = 0$$